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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,157	05/16/2005	Helmuth Eggers	3926.150	5769
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EXAMINER				
IGYARTO, CAROLYN				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/535,157

Applicant(s)

EGGERS ET AL.

Examiner

CAROLYN IGYARTO

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-7, 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-7, 9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed on 16 November 2007 was accepted and entered. Accordingly, claim 1 has been amended. Claims 3 and 8 have been cancelled. Claim 10 has been newly added. Thus, claims 1-2, 4-7, and 9-10 are currently pending in this application.
2. In view of the amendment, received 16 November 2007, the previous objection made to claim 1 has been withdrawn.

Response to Arguments

3. Applicant's arguments filed 16 October 2007 have been fully considered but they are not persuasive. Applicant argues that the prior art of record does not teach a tolerance region and alleges the Examiner is interpreting the term "tolerance" as meaning "fudge factor" – room for acceptable error. This is not the interpretation of the Examiner. Rather it is known to include a tolerance region because this region contains data that is relevant, but is not within the confines of the main region, leading to a more accurate interpretation of what is being detected. Nishigaki et al. has been used in the combination of prior art to show that areas outside of an initial area of interest are still measured. Maekawa is also included as an example of a system that uses an area outside of an initial area of interest in order to located relevant objects. One of ordinary

skill in the art would recognize to include an area outside of the initial area of interest, or a tolerance region, in the perception region in order to locate relevant objects, such as a vehicle that may swerve into the driver's lane or a road sign (93 Nishigaki et al.).

4. Applicant's remaining arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

5. Claim 1 is objected to because of the following informalities:

6. Line 11 recites "a surroundings sensor". This is previously recited in line 3. If the recitation of "a surroundings sensor" in line 11 is referring to the same surroundings sensor as line 3, then the recitation in line 11 should be changed to "the surroundings sensor". If the recitation in line 11 is referring to a different surroundings sensor, then the recitation in line 11 should be changed to denote a different surroundings sensor. For purposes applying prior art the Examiner is interpreting the surrounding sensor in line 11 to be the same sensor as in lines 3 and also line 6.

7. Line 15 recites "component regions"; instead "the plurality of component regions" should be recited to conform with the recitation of "a plurality of component regions" in lines 9-10.

8. Line 16 recites "the component regions"; instead "the plurality of component regions" should be recited to conform with the recitation of "a plurality of component regions" in lines 9-10.

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9. Line 16 recites "the evaluation priority assigned." This is unclear because no evaluation priority has previously been recited. It is the Examiners interpretation that "evaluation" should be removed from this recitation and instead "the priority assigned" should be recited, because "assigning a priority" has previously be recited, thus making this line more clear.
10. Appropriate corrections are required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1-2, 4-7, and 9-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitation of assigning a priority to each component region does not appear to be in the original disclosed.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida (US 2003/0222812) in view of Nishigaki et al. (US 6,775,395), Maekawa (US 5,530,771), and Morcom (International Patent Application Publication WO 02/082201).

16. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

17. In view of **claims 1 and 10**, Kishida teaches a method for sensing the surroundings in front of a road vehicle by means of a surroundings sensing system, in

which surroundings data is obtained by means of a surroundings sensor, and objects are detected by processing the surroundings data (Abstract; [0047] line 8; [0002]), the method comprising:

defining a perception region corresponding to a partial region of a region sensed by the surroundings sensor ([0013]; [0042] lines 6-9),
defining a lane, defining a region outside said lane ([0013]; [0046]),
dividing the perception region into a plurality of component regions ([0013]),
sensing surroundings within the perception region via a surroundings sensor to obtain surroundings data ([0030], lines 9-15),
processing the surroundings data to detect objects ([0030] lines 13-15),
assigning a priority to each component region on the basis of the detected objects ([0046]),
subjecting component regions to a multi-stage evaluation based on the evaluation priority assigned to the component regions ([0013]; [0031] lines 26-28), and
issuing a warning (10; [0032] lines 1-5).

Kishida further teaches that the perception region is restricted to the lane ([0013]). Kishida does not explicitly teach defining a tolerance region next to said lane, restricting the perception region to the lane and the tolerance region or issuing a warning to a driver of the road vehicle based on a result of the evaluation.

Tolerances are often included in engineering applications to account for variations in system components and objects being viewed. As Nishigaki et al.

suggests, tolerances are often included in image processing and distance calculations in an object recognition system (col. 7, lines 1-19). Although such tolerances apply to the calculation of distances, one of ordinary skill in the art would recognize the need for tolerances, especially in view of pixel performance (col. 7, lines 3-5) as well as the possible location of relevant objects just outside or between lanes (see, for example, Maekawa Figure 6).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a tolerance region with the lane, so as to account for variations in imaging performance, as taught by Nishigaki et al., and to account for relevant object outside or between lanes, as seen in the teachings of Maekawa.

Also, in regards to the size of the perception region (i.e. lane region + tolerance region), the limitations of the claim can be construed as a discussion of optimum value for the perception region. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a perception region equal to a lane region plus a tolerance region, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Morcom teaches issuing a warning to a driver of the road vehicle based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation (pg. 1, lines 18-19; pg. 7, lines 15-16; pg. 15, lines 18-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the alarm unit, taught by Kishida, issue a warning to a driver of the road vehicle

based on a result of the evaluation of data for the benefit of warning an operator of a dangerous situation and allow the operator to make corrections to limit the danger.

18. With respect to **claim 2**: Kishida is silent how the lane is detected or defined. A lane being detected by image processing is a known method to determine lane position as taught by Morcom (page 2, line 34 through page 3, line 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made have the method taught by Kishida combined with defining the lane by detecting the lane by image processing, as taught by Morcom, as a person with ordinary skill in the art has good reason to pursue the known options within his/her technical grasp.

19. Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida, Nishigaki, Maekawa, and Morcom as applied to claim 1 above, and further in view of Saka et al. (US 6,792,147).

20. With respect to **claims 4-5**, Kishida, as modified above, teaches all of the limitations of claim 1, as explained above. Kishida teaches that objects are detected using the disclosed sensor system, but does not explicitly teach that the object perception is achieved by image processing methods or that object classification occurs to rule out false alarms. Kishida does teach data processing to determine the type of object ([0016]). Further, Morcom does allow for image acquisition for conveying to the driver (page 11, lines 21-31).

Saka discloses an object recognition system for use in object perception, wherein an infrared image sensor detects IR light reflected from an object (col. 4, lines 55-56). Saka further teaches that the data obtained by the image sensor is processed to allow for object recognition of the vehicle ahead (col. 6, lines 19-33). Saka further discloses that the object classification is carried out by image processing methods, specifically horizontal edge evaluation techniques, so as to classify the object as a relevant vehicle or irrelevant (col. 9, lines 25-43), thus ruling out false alarms.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide object recognition and classification via image processing techniques so as to rule out false alarms, as taught by Saka.

21. With respect to **claim 6**, Kishida teaches determining the distance to objects ([0040] lines 11-14).

22. With respect to **claim 9**, the combination of Kishida, Nishigaki, Maekawa, and Morcom is silent with regards to the surroundings sensing system being a night vision system. However, Morcom does disclose the use of NIR wavelengths, which are used in night vision systems, to allow for use in rain, snow, and fog. Saka teaches that imaging system employed for object recognition in a vehicle can employ infrared systems so as to allow for nighttime use (col. 4, lines 50-56). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an IR vision system so as to allow for object recognition at night, as taught by Saka.

23. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kishida, Nishigaki, Maekawa, Morcom, and Sake as applied to claim 4 above, and further in view of Falbish et al. (European Patent Application Publication # 0544468 A2).

The combination of Kishida, Nishigaki, Maekawa, Morcom, and Sake disclose all the limitations of claim 4, as explained above. It is noted that claim 7 does not depend upon claim 4, but claim 4 contains limitation regarding object perception relevant to the limitations of claim 7. However, the combination does not specifically recite the limitation of sensing the movement of objects. Saka teaches determination of location and distance, but does not specifically mention calculating the velocity of objects. Kishida contains a similar disclosure in that regard.

Falbish teaches an object tracking system (Fig. 1) for use with a vehicle similar to that proposed by Saka (Fig. 1, col. 4, line 60 through col. 5, line 15). Falbish further teaches that such a system can be used to track a number of targets and to calculate the velocity of the object (col. 11, lines 44-51). As would be evident to one of ordinary skill in the art, such information could be used to differentiate between moving vehicles and stationary vehicles, which could be used in determination of collision scenarios.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide tracking of targets by calculation of target velocity, as taught by Falbish, so as to provide information between moving and stationary vehicles for collision assessment analysis.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROLYN IGYARTO whose telephone number is (571)270-1286. The examiner can normally be reached on Monday - Thursday, 7:30 A.M. to 5 P.M. E.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CI

/David P. Porta/

Supervisory Patent Examiner, Art Unit 2884

